RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 60-08-10

Log Event A

Borehole Information

Farm : U	**Tank :** U-108	**Site Number :** 299-W18-54
N-Coord : 38,035	**W-Coord :** 75,775	**TOC Elevation :** 665.96
Water Level, ft :	**Date Drilled :** 10/31/1944	

Casing Record

Type : Steel-welded	Thickness : 0.365	ID, in. : 10
Top Depth, ft. : 0	Bottom Depth, ft. : 150	
Type : Steel-welded	Thickness : 0.406	ID, in. : 12
Top Depth, ft. : 0	Bottom Depth, ft. : 50	

Borehole Notes:
This borehole was drilled in 1944 and completed with a 12-in.-nominal-diameter steel casing with a presumed thickness of 0.406 in. to a depth of 50 ft. A 10-in.-nominal diameter steel casing with a thickness of 0.365 in. was placed inside the 12-in. casing to a depth of about 150 ft. It is not known if the 12-in. casing remains in the borehole. The 10-in. casing was perforated with 0.5-by 3-in. slots, 6 around on 12-in. centers, and staggered from 48 to 148 ft. A cement plug was placed in the bottom of the casing.

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1995	**Calibration Reference :** GJPO-HAN-3	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 11/17/1995	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 10.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a
Log Run Number : 2	**Log Run Date :** 11/20/1995	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 141.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 64.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a
Log Run Number : 3	**Log Run Date :** 11/21/1995	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 65.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 9.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Borehole 60-08-10

Log Event A

Analysis Information

Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787 Analysis Date : 6/7/1996

Analysis Notes :

This borehole was logged in three log runs. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated energy versus channel number recalibrations during processing of the data to maintain proper peak identification. Depth overlaps, where data were collected on separate days at the same depth, occurred in this borehole at about 10 and 64 ft. The calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability.

The casing thicknesses are presumed to be 0.365 inch (in.) and 0.406 in., on the basis of the published thicknesses for schedule-40, 10-in. and 12-in. steel casings, respectively. Casing-correction factors for a 0.365-in.-thick steel casing were applied during analysis from 50 to 141 ft. From 0 to 50 ft, a casing correction of 0.675 in. was used. Using this correction factor appears to approximate expected concentrations, but the data should be considered qualitative because the system is not calibrated for a double-cased borehole.

Cs-137 was the only man-made radionuclide identified in this borehole. The presence of Cs-137 was measured at the ground surface (0 to 0.5 ft), almost continuously from 46 to 70 ft, and at intermittent locations in the remainder of the borehole at concentrations less than 1 pCi/g. The maximum concentration was about 4 pCi/g at 48.5 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank U-108.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.